CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER NO. 00-044

WASTE DISCHARGE REQUIREMENTS
FOR
HEBER GEOTHERMAL COMPANY, FACILITY OWNER
U.S. TRUST COMPANY OF NEW YORK, LAND OWNER
OGDEN GEOTHERMAL OPERATIONS, INC., OPERATOR
HEBER GEOTHERMAL PLANT
EVAPORATION AND HOLDING BASINS
South of Heber - Imperial County

The California Regional Water Quality Control Board, Colorado River Basin Region, finds that:

1. Heber Geothermal Company, Facility Owner, 895 Pitzer Road, Heber, California 92243, U.S. Trust Company of New York, Land Owner, 3211 Jermantown Road, Suite 300, Fairfax, Virginia 22030, and Ogden Geothermal Operations, Inc., Operator, 895 Pitzer Road, Heber, California 92249 (hereinafter collectively referred to as the discharger), submitted a Report of Waste Discharge (ROWD) to the California Regional Water Quality Control Board, Colorado River Basin Region (Regional Board) for Heber Geothermal Plant Evaporation and Holding Basins dated April 30, 1999, for the operation of the Evaporation and Holding Basins Facility (E&HBF).

2. Heber Geothermal Company is operating a 47-Megawatt (Net) geothermal power generating plant that uses a dual-flash process. The Heber brine, produced from wells of the Heber Field Company (HFC), has a salt content of 14,000 PPM and dynamic wellhead pressure and temperature of 25 to 60 psig[1] and 250-300^{o}F.

3. The Heber Field Company geothermal wellfield currently consists of twenty-one wells: eleven production wells and ten injection wells as shown below:

Production Wells	Injection Wells
HGU 5	HGU 50
HGU 6	HGU 51
HGU 7	HGU 52
HGU 8	HGU 53
HGU 9	HGU 54
HGU 10	HGU 55
HGU 11	HGU 56
HGU 12	HGU 57
HGU 13	HGU 71
HGU 14	HGU 72
HGU 16	

4. Each well has an automatic wellhead control valve that controls the flow from the wells, and the entire system is computer-controlled from the Production Island control room.

[1] psig = pound per square inch gage

5. The HFC transports the brine/steam mixture along twin pipelines to the auxiliary flash tank where additional steam is flashed from the brine. HFC's responsibility for the incoming brine ends near the entry to the auxiliary flash tank.

6. HFC is also responsible for the injection of the used brine, which is accomplished by pumping to the ten (10) injection wells located approximately 1 ½miles from the site.

7. The Heber Geothermal Company Power Station system consists of the brine transport piping, flash separation equipment, a steam turbine and condenser, gas removal equipment, a generator, and electrical switchyard and a collection and transfer system.

8. The Company has constructed two evaporation and one holding basin at the plant covering a total of approximately four acres.

9. Heber Geothermal Plant Evaporation and Holding Basins are located in the SW ¼ SW ¼ Section 34, T16S, R14E, SBB&M.

10. The basins are designed to collect geothermal fluid, wastewater, and storm water runoff from the plant.

11. The basins also serve as a standby facility to receive wastewater under emergency conditions, which may occur at the plant such as brine leaks, plant shutdowns, pipe ruptures, and other unexpected adverse situations.

12. The evaporation and holding basins are lined with a minimum of six inches of compacted clay with permeability of approximately $1x\ 10^{-6}$ cm/sec, or less. The two evaporation ponds have a maximum capacity of 5.73-million gallons, and the holding basins have a maximum capacity of 1.4-million gallons.

13. Definition of terms used in this Order:

    a. Facility – The entire parcel of property where geothermal industrial operations or related geothermal industrial activities are conducted.

    b. Waste Management Unit (WMU) – An area of land, or a portion of the facility, where geothermal or related waste is discharged. The term includes containment and ancillary features for precipitation and drainage control and monitoring appurtenances.

    c. Discharger – Discharger means any person who discharges waste that could affect the quality of the waters of the State, and include any person who owns the land, waste management unit or who is responsible for the operation of a waste management unit.

14. The site geology in the vicinity of the WMU is surficial silty-clay with a minimum thickness of 20 feet of mixed sand and silt clays. The clay soils have a moderate to low permeability. The clay deposits are in excess of three feet thick.

15. The facility is located in intermixed sandy and silty clay soil with an average falling head permeability of $1.0x10^{-6}$ cm/sec.

16. The discharger indicates that the depth to the ground water is approximately seven (7) feet beneath the bottom of basins.

17. The Water Quality Control Plan for the Colorado River Basin Region of California (Basin Plan) was adopted on November 17, 1993, and designates the beneficial uses of ground and surface waters in this Region.

18. The beneficial uses of ground water in the Imperial Hydrological Unit , are:

    a. Municipal Supply (MUN)
    b. Industrial Supply (IND)

19. Federal regulations for storm water discharges were promulgated by the U. S. Environmental Protection Agency on November 16, 1990 (40 CFR Parts 122, 123, and 124). The regulations require that specific categories of facilities which discharge storm water associated with industrial activity to obtain NPDES permits and to implement Best Conventional Pollutant Technology (BCPT) to reduce or eliminate industrial storm water pollution.

20. The State Water Resources Control Board adopted Order No. 97-03-DWQ (General Permit No. CAS000001), specifying waste discharge requirements for discharges of storm water associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent by industries to be covered under the Permit.

21. The land surface within the boundaries of the site is predominantly flat within a man made channel that flows by gravity from an irrigation lateral parallel to the site boundary. When the lateral is dry, makeup water is pumped from the Central Main Canal, approximately one-half mile due south of the cooling tower. The Central Main Canal also serves as the primary source of service water and firewater makeup for the plant. The elevation at the site is 5 feet below sea level.

22. The facility operational areas are designed to convey runoff, wastewater from cleaning operations, and precipitation to the evaporation/holding basins. According to the ROWD the facility has a minimum grade of 3 to 5%.

23. The cooling tower at the facility uses a maximum of 4.03-million gallons of make up water per day. The processed water is provided by an on-site holding reservoir serviced by the Imperial Irrigation District.

24. Surface water drainage from the watershed above the facility is north to southeast into the Strout Drain, which discharge into the Alamo River, which discharge into the Salton Sea.

25. The facility is located within a large agriculture zone in a desert environment in southwestern Imperial County. Normal annual precipitation in this area is 2 to 2.5 inches, and normal annual surface evaporation is approximately 92 inches.

26. The WMU became subject to Waste Discharge Requirements (WDRs) under Board Order No. 84-028 in March 21, 1984. The WDRs were updated and superseded by Board Orders No. 89-081 in November 29, 1989. These WDRs are being updated to comply with Section13263 of the California Water Code of Regulation and to incorporate the applicable provisions of Title 27 of the California Code of Regulation.

27. The Board has notified the discharger and all known interested agencies and persons of its intent to update waste discharge requirements for this discharge and has provided them with an opportunity for a public meeting and an opportunity to submit comments.

28. The Board in a public meeting heard and considered all comments pertaining to this discharge.

29. The Heber Geothermal facility is not allowed to discharge, treat or compost the following wastes:

a. Municipal solid waste;
b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);
c. Septage;
d. Liquid waste, unless specifically approved by this Order or by the California Regional Water Quality Control Board's (CRWQCB) Executive officer;
e. Oily and greasy liquid waste;
f. Hot, burning waste materials or ash;
g. Hazardous and designated waste, ash, or other wastes determined by the CRWQCB to pose a potential; treat to water quality.

30. Any hazardous materials found at the facility will be stored in a hazardous material storage shed and will be removed within 90 days by a hazardous waste hauler licensed by the State of California.

31. In accordance with Section 15301, Chapter 3, Title 14 of the California Code of Regulations, the issuance of these Waste Discharge Requirements, which govern the operation of an existing facility involving negligible or no expansion of use beyond that previously existing, is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code, section 21000 ex.seq.).

32. The jurisdiction of the Regional Board is limited to regulating the impact of water quality and the beneficial uses of water by the discharge of wastes. These Waste Discharge Requirements, Order No. 00-044, are limited to matters within the Regional Boards' jurisdiction.

IT IS HEREBY ORDERED, that Board Order No. 89-081 is rescinded, and in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, the discharger shall comply with the following:

A. Specifications

1. The treatment or disposal of wastes at this facility shall not cause pollution as defined in Sections 13050 of Division 7 of the California Water Code.

2. Waste material shall be confined to the waste management facility as defined in Finding No. 9 and in the attached site map.

3. Storage of waste shall be limited to the areas designated for such activities. Any revision or modification of the designated area, or any proposed change in operation at the facility, must be submitted in writing to the Regional Board's Executive Officer of the Board for review and approval before the proposed change in operations or modification of the designated area is implemented.

4. Any increase or change in the annual average volume of material to be discharged at the site must be submitted in writing to the Regional Board's Executive Officer for review and approval.

5. If any portion of the basin is to be closed, the discharger shall notify the Regional Board's Executive Officer at least 180 days prior to beginning any partial or final closure activities.

6. Wastewater and solid wastes can be discharged at the WMU if they were generated at the facility under emergency conditions such as brine leaks, plant shutdowns, pipe ruptures, and other unexpected adverse situations.

7. Fluids and/or materials discharged to and/or stored in these containment basins shall not overflow the basins.

8. A minimum freeboard of two (2) feet shall be maintained at all time in each containment basin.

9. Fluids discharged by subsurface injection shall be injected below the fracture pressure of the receiving aquifer and of the confining layer immediately above the receiving aquifer.

10. Final disposal of residual wastes and cleanup of all containment basins and sumps shall be accomplished to the satisfaction of the Regional Board's Executive Officer upon abandonment or closure of operations.

11. All containment basins shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods having a predicted frequency of once in 100 year.

12. Geothermal clean out fluid, test and production fluid and sand separators, production and injection well startups and clean outs shall be discharged into containment basins or containers approved by the Regional Board's Executive Officer to received this discharge.

13. Following well completion, the respective mud pits shall have all drilling mud and cuttings tested and disposed of in a manner acceptable to the Regional Board's Executive Officer.

14. Prior to disposal, solids that accumulate in the concrete cooling tower basins must be analyzed and the results submitted to the Regional Board's Executive Officer for approval of the manner of disposal.

15. Public contact with wastes containing geothermal fluids shall be precluded through such means as fence, signs, or other acceptable alternatives.

16. The discharge shall not cause degradation of any water supply.

17. Containment basins shall be managed to prevent breeding of mosquitoes, in particular,

    a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

    b. Weeds shall be minimized through control of water depth or harvesting.

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface..

18. Ninety days prior to the cessation of discharge operations at the facility, the discharger shall submit a workplan, subject to approval of the Regional Board's Executive Officer, for assessing the extent, if any, of contamination of natural geological materials and waters of the Imperial Hydrological Unit by the waste. Within 120 days following workplan approval, the discharger shall submit an technical report presenting results of the contamination assessment. A California Registered Civil Engineer or certified Engineering Geologist must prepare the workplan, contamination assessment, and engineering report.

19. Upon ceasing operations at the facility, all waste, all natural geologic material contaminated by waste, and all surplus or unprocessed material shall be removed from the site and disposed of in a manner approved by the Executive Officer.

20. The discharger shall establish a bond for closure in an amount acceptable to the Regional Board's Executive Officer or provide other means to ensure financial security closure if closure is needed at the discharging site. The closure fund shall be established (or evidence of an existing closure fund shall be provided) within six months of the adoption of this Order.

21. Surface drainage from tributary areas or subsurface sources, shall not contact or percolate through the waste discharged at this site.

22. The interior surfaces of the WMU shall be graded and maintained to promote conveyance to the basin of the facility lateral runoff and precipitation.

23. If the chemical analyses of any liquid collected in the basin exceed designated or hazardous level criteria, the waste must be removed from the basins and appropriately disposed.

24. The discharger shall use the constituents listed in Monitoring and Reporting Program No. 00-044 and revisions thereto, as "Monitoring Parameters".

25. The discharger shall implement the attached Monitoring and Reporting Program No. 00-044 and revisions thereto, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents from the facility, or any impairment of beneficial uses associated with (caused by) discharges of waste to the facility.

26. The discharger shall follow the Water Quality Protection Standard (WQPS) for detection monitoring established by the Regional Board. The following are four parts of WQPS as established by the Regional Board's Executive Officer.

    a. The discharger shall test for the monitoring parameters and the Constituents of Concern (COC) listed in the Monitoring and Reporting Program No. 00-044 and revisions thereto for:

    b. Concentration Limits - The concentration limit for each monitoring parameter and constituents of concern for each monitoring point (as stated in the Detection Monitoring Program), shall be its background value as obtained during that reporting period.

    c. Monitoring points of compliance are the monitoring approved points, and any revised Monitoring and Reporting Program approved by the Regional Board's Executive Officer.

    d. Compliance period - The duration of the compliance period for this facility is 3 years. Each time the Standard is not met (i.e. releases discovered), the facility begins a compliance period on the date the Regional Board directs the discharger to begin an Evaluation Monitoring Program. If the discharger's Corrective Action Program (CAP) has not achieved compliance with the standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the facility has been in continuous compliance for at least three consecutive years.

27. The discharger shall remove and relocate any unacceptable wastes that were brought or discharged at this site in violation of these requirements.

28. Water used for the process and site maintenance shall be limited to the amount necessary in the process and for dust control.

29. The WMU shall be protected from any washout or erosion, and from any inundation, which could occur as a result of floods having a predicted frequency of once in 100 years.

30. The discharger shall not cause the release of pollutants, or waste constituents in a manner, which could cause a condition of contamination, or pollution to occur.

B. Prohibitions

1. Under normal operating conditions, the disposal of liquid and solid waste at the MWU is prohibited.

2. Heber Geothermal Company is prohibited from discharging, treating or composting at this site the following wastes:

    a. Municipal solid waste;
    b. Sludge (including sewage sludge, water treatment sludge, and industrial sludge);
    c. Septage;
    d. Liquid waste, unless specifically approved by this Order or by the California Regional Water Quality Control Board's (CRWQCB) Executive officer;
    e. Oily and greasy liquid waste;
    f. Hot, burning waste materials or ash;
    g. Hazardous and designated waste, ash, or other wastes determined by the CRWQCB to pose a potential; treat to water quality.

3. The discharge or deposit of hazardous, designated waste (as defined in Title 27), and other wastes determined by the CRWQCB to pose a potential treat to water quality at this site is prohibited.

4. The discharger shall not cause degradation of any groundwater aquifer and water supply.

5. The discharge of waste to land not owned or controlled by the discharger is prohibited.

6. Use of geothermal fluids or cooling tower liquids on access roads, well pads, or other developed project locations for dust control is prohibited.

7. The discharge of hazardous or designated wastes to other than a waste management unit authorized to receive such waste is prohibited.

8. Permanent (longer than one (1) year) disposal or storage of geothermal waste in on-site temporary containment basins is prohibited, unless authorized by the Regional Board's Executive Officer.

9. Temporary discharge and/or storage of geothermal fluids or any fluids for longer than one (1) year, other than into containment basins having a lining permeability of $1x10^{-6}$ cm/sec, or less, is prohibited, and the fluids contained therein shall not penetrate through the lining during the containment period.

10. Geothermal fluids or any fluids in the basins shall not enter any canal, drainage, or drains (including subsurface drainage systems) which could provide flow to the Salton sea, except as allowed under an appropriate National pollutant Discharge Elimination System (NPDES) permit.

11. Prior to disposal of any materials, including fluids and sediments, removed from the evaporation and holding basins and cooling tower basins, the discharger shall inform the Regional Board's Executive Officer concerning the nature and volume of the materials and proposed location of disposal. The material shall only be disposed of at a location approved by the Regional Board's Executive Officer, and then only after the Executive Officer has given prior approval to such disposal.

12. The discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituents in either liquid or gaseous phase.

13. Direct discharge of any waste to any surface water or surface drainage courses is prohibited.

14. The discharger shall not cause the concentration of any Constituent of Concern or Monitoring Parameter to exceed its respective background value in any monitored medium at any Monitoring Point assigned for Detection Monitoring pursuant to Monitoring and Reporting Program No. 00-044 and revisions thereto.

C. Provisions

1. The discharger shall comply with "Monitoring and Reporting Program No. 00-044 and future revisions thereto, as specified by the Regional Board's Executive Officer.

2. Unless otherwise approved by Regional Board's Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Service. All analyses shall be conducted in accordance with the latest edition of "Guidelines Establishing Test Procedures for Analysis of Pollutants", promulgated by the United States Environmental Protection Agency.

3. Prior to any change in ownership or management of this operation, the discharger shall transmit a copy of this Board Order to the succeeding owner/operator, and forward a copy of the transmittal letter to the Regional Board.

4. Prior to any modifications in this facility, which would result in material change in the quality or quantity of discharged, or any material change in the location of discharge, the discharger shall report all pertinent information in writing to the Regional Board and obtain revised requirements before any modifications are implemented.

5. If vegetation is used for erosion control purposes at the containment features, it shall not impair the integrity of containment features. If irrigation of vegetation is used at the WMU, it shall be managed to assure that there is no increase in the production of runoff.

6. All containment structures and erosion and drainage control systems shall be designed and constructed under direct supervision of a California Registered Civil Engineer or Certified Engineering Geologist, and shall be certified by the individual as meeting the prescriptive standards and performance goals.

7. The discharger shall ensure that all site-operating personnel are familiar with the content of this Board Order, and shall maintain a copy of this Board Order at the site.

8. This Board Order does not authorize violation of any federal, state, or local laws or regulations.

9. The discharger shall allow the Regional Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:

    a. Enter upon the premises regulated by this Board Order, or the place where records must be kept under the conditions of this Board Order;

    b. Have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Board Order;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Board Order; and

    d. Sample or monitor at reasonable times, for the purpose of assuring compliance with this Board Order or as otherwise authorized by the California Water Code, any substances or parameters at this location.

10. The discharger shall comply with all of the conditions of this Board Order. Any noncompliance with this Board Order constitutes a violation of the Porter-Cologne Water Quality Control Act and is grounds for enforcement action.

11. The discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the discharger to achieve compliance with this Board Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

12. This Board Order does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

13. The discharger shall comply with the following:

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and any all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Board Order, and records of all data used to complete the application for this Board Order, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Board's Executive Officer at any time.

    c. Records of monitoring information shall include:

        1. The date, exact places, and time of sampling or measurements.
        2. The individual(s) who performed the sampling or measurements.
        3. The date(s) analyses were performed.
        4. The individual(s) who performed the analyses.
        5. The results of such analyses.

    d. Monitoring must be conducted according to test procedures described in the Monitoring and Reporting, unless other test procedures have been specified in this Board Order.

14. All monitoring systems shall be readily accessible for sampling and inspection.

15. The discharger is the responsible party for the waste discharge requirements, and the monitoring and reporting program for the facility. The discharger shall comply with all conditions of these waste discharge requirements. Violations may result in enforcement actions, including Regional Board Orders or court orders, requiring corrective action or imposing civil monetary liability or in modification or revocation of these waste discharge requirements by the Regional Board.

16. The discharger shall furnish, under penalty of perjury, technical monitoring program reports, and such reports shall be submitted in accordance with the specifications prepared by the Regional Board's Executive Officer. Such specifications are subject to periodic revisions as may be warranted.

17. The discharger may be required to submit technical reports as directed by the Regional Board's Executive Officer.

18. The discharger shall neither cause nor contribute to the contamination or pollution of ground water via the release of waste constituent in either liquid or gaseous phase.

19. The discharger shall not cause any increase in the concentration of waste constituents in soil pore gas, soil-pore liquid, soil or other geological material outside the WMU if such waste constituents could migrate to waters of the State in either the liquid or the gaseous phase, and cause conditions of contamination or pollution.

20. The procedure for preparing samples for the analyses shall be consistent with the Monitoring and Reporting Program No. 00-044 and any revisions thereto. The Monitoring Reports shall be certified to be true and correct, and signed, under penalty of perjury, by an authorized official of the Company.

21. The discharger shall submit a Notice of Intent (NOI) to the State Water Resources Control Board to be covered under the Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities, Order No. 97-03-DWQ , NPDES No. CAS000001.

22. All monitoring shall be done as described in Title 27 of the California Code of Regulations.

I, Philip A. Gruenberg, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region, on May 10, 2000.

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Executive Officer